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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/481,327 | 01/12/2000 | Yoshiyuki Takeuchi | DT-3300 | 5513 |

7590 01/02/2004
AKO-Toren
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New York, NY 10020-1182

EXAMINER

RIDLEY, BASIA ANNA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/481,327 | TAKEUCHI ET AL. | |
| | Examiner <i>BR</i> | Art Unit | |
| | Basia Ridley | 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/324,310.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:
 - unclear numbering of paragraphs - it is not clear why some paragraphs don't have any outline numbers (e.g. page 7, paragraph starting on line 6, etc.), some have more than one outline number (e.g. page 3, etc.) and others have variously formatted numbers (e.g. page 3, page 7, etc.);
 - unclear chemical formulas, e.g. formulas on page 7 or 9 have \square rather than arrows;
 - lack of consistency with respect to various temperature ranges (e.g. page 12: boiling range for hydrocarbons from room temperature to 700°C; page 15: "hydrocarbon compounds having boiling point up to 750°C"; etc.);
 - inconsistent spacing (e.g. on page 24, it appears that in line fourth from the top, the recitation starting with "200 mm (...)" should start a new paragraph; on page 36 it appears that in line 7 from the bottom, sentence starting with "Rotational speed (...)" should start new paragraph and sentence starting with "Plastic gas (...)" should start new paragraph; page 36 line 2 (from the bottom) "4.4 Nm³/h" is part of paragraph ending on line 3 from the bottom; etc.);
 - unclear recitations (e.g. "about mm cubes" (page 31, last line); "GERP 2" (page 40, line 5 from the bottom); "by 2 the" page 43, line 2); etc.);
 - missing units (e.g. on page 20, "O₂/C = 0.3" does not specify what kind of ratio (e.g. mole, weight or volume), etc.);

- inconsistent numbering of elements (e.g. "combustion section 21" (P47/L7) and "gasification furnace 21" (P47/L10-11); or "plastic gas decomposition section 22" (P47/L14) and "combustion furnace 22" (P47/L14); etc);
- last column of Table 2 (page 35) lacks explanation of notation.

The applicant is reminded that the above instances are merely exemplary and that the disclosure should be carefully reviewed and revised to avoid unclear, inexact or verbose terms.

Drawings

2. Replacement Fig. 2 was received on 11 September 2003. These drawing is acceptable.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:
 - Fig. 4 does not show "gasification section 1" as described on P40/L16-17;
 - Fig. 4 does not show "discharge orifice 5" as described on P42/L3.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The applicant is reminded that the above instances are merely exemplary and that the drawings should be carefully reviewed and revised to comply with 37 CFR 1.83 and 1.84.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Gravel (USP 3,847,664) in view of Greve (USP 4,983,549) and further in view of Babu et al. (USP 4,592,762).

Regarding claim(s) 1, Gravel disclose(s) similar process comprising the steps of:

- feeding a glass fiber reinforced plastic material to a gasification furnace (abstract);
- heating the material to a temperature of 650 to 750°C in the presence of oxygen and steam to gasify the plastic component thereof (abstract, C4/L1-30);
- recovering the remaining glass fibers (C7/L15-18).

The Gravel does not explicitly disclose said gasification furnace being a rotatable furnace.

Greve establishes various reactors which can be used for processing of glass fiber reinforce materials (C5/L3-16), said reactors including gasification furnaces and rotary furnaces. As instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the furnace of Gravel with a rotary furnace, since such modification would have involved a mere substitution of known equivalent structures. A substitution of known equivalent structures is generally recognized as being within the level of ordinary skill in the art.

While Gravel discloses that produced plastic gases comprise products of volatilization, vaporization oxidation and gasification of organic materials (abstract), the reference does not explicitly disclose that said plastic gases are further partially oxidized to form CO and H₂.

Babu et al. teaches that gas created by gasification and volatilization of organic materials can be partially oxidized to form gas with higher CO and H₂ content (C7/L3-44). Further the reference teaches that such oxidation is desired to produce more valuable products (C8/4-26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to partially oxidize plastic gases produced in the system of Gravel, as taught by Babu et al. for the purpose of improving system economics by producing more desirable product gas.

6. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Gravel (USP 3,847,664) in view of Greve (USP 4,983,549) and further in view of Hanson, Jr. et al. (USP 5,019,171).

Regarding claim(s) 3, Gravel disclose(s) similar process comprising the steps of:

- feeding a glass fiber reinforced plastic material to a gasification furnace (abstract);
- heating the material to a temperature of 650 to 750°C in the presence of air and steam to gasify the plastic component thereof (abstract, C4/L1-43);
- recovering the remaining glass fibers (C7/L15-18);
- introducing the resulting plastic gas into a combustion section (C6/L9-38);
- burning the plastic gas at a temperature of 700 to 1000°C in the presence of additional air or an additional mixture of air and steam (C6/L9-38).

The Gravel does not explicitly disclose said gasification furnace being a rotatable furnace.

Greve establishes various reactors which can be used for processing of glass fiber reinforce materials (C5/L3-16), said reactors including gasification furnaces and rotary furnaces. As instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the furnace of Gravel with a rotary furnace, since such modification would have involved a mere substitution of known equivalent structures. A substitution of known equivalent structures is generally recognized as being within the level of ordinary skill in the art.

While Gravel discloses that produced plastic gases are burned in a combustion section, the reference does not explicitly disclose that heat generated in said combustion section is recovered.

Hanson, Jr. et al. teaches that gases produced by gasification of glass fiber reinforced plastic material have substantial heat content, and that process economics can be improved by recovering some of said heat content in, for example, a waste heat boiler (C5/L30-53)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recover waste heat in the system of Gravel in a waste heat boiler, as taught by Hanson, Jr. et al. for the purpose of improving system economics.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

8. Applicant's arguments with respect to claims 1 and 3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453. The examiner can normally be reached on Monday through Thursday, from 9:00 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764

BR

Jerry O. Johnson
JERRY O. JOHNSON
PRIMARY EXAMINER
GROUP 1500

BR
December 15, 2003